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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/738,349	12/16/2003	Joonho Kim	2003P53927US/I331.118.101	9664

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EXAMINER

NGUYEN, NAM THANH

ART UNIT	PAPER NUMBER
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2824

DATE MAILED: 12/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/738,349

Applicant(s)

KIM, JOONHO

Examiner

Nam T Nguyen

Art Unit

2824

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17-32 is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☒ Claim(s) 2-16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner (*Abstract*) *12/12/04*
- 10) ☒ The drawing(s) filed on 16 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/16/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: EAST search.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 rejected under 35 U.S.C. 103(a) as being unpatentable over Cowles et al. (US.Pat. 5,995,426) in view of Johnston (US. Pat. 6,272,588).

Cowles et al (see figure 3) disclose a random access memory device comprising memory banks (61, figure 3; it is noted that an array would be considered as a bank or a block or vice versa), a plurality of precharge circuit, each connected to the bank (or array) 61 for precharging the memory banks in both normal mode and test mode. To be more specific, in the test mode the INTERNAL_PRECHARGE signal is ON, then the precharging operation is performed (see column 6, lines 8-15), and in the normal mode, the NOR gate 132 (see figure 5) would assert the signal INTERNAL_PRECHARGE in response to the EXTERNAL-PRECHARGE command, then the precharge operation is performed, Therefore, in both test mode and normal mode, the precharge circuit of Cowles et al is activated as claimed in claim 1.

The only difference between claim 1 and Cowles et al is Cowles et al is silent on the use of a timer so as to control the timing of the precharging operation in the memory device.

Johnston et al teach that the use of a precharge timer (see figure 2) connected to a memory device for controlling the timing of the precharging operation of the memory device is well known in the memory art (see column 7, lines 64 –67). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Cowles et al by incorporating a precharge timer connected to a precharge circuit that connected to each one of the memory banks in order to control the timing of the precharging operation, since such technique is well known and conventional in the memory art as admitted by Johnston et al.

Allowable Subject Matter

3. Claims 2-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

There is no teaching or suggestion in the prior art to:

“ a burst end signal that indicates the end of a first burst from a first one of the memory banks: as claimed in the dependent claim 2; or

“ a precharge timer enable signal to indicate the beginning of a first burst from a first one of the memory banks” as claimed in the dependent claim 8; or

“ a burst end signal that indicates the end of each burst from each of the memory banks in normal mode” as claimed in the dependent claim 10; or

“ a precharge timer enable signals to indicate the beginning of each burst from each of the memory banks in normal mode” as claimed in the dependent claim 12; or

“ a multiplexer configured to supply a burst end signal and a precharge timer enable signal to one of the precharge timers in normal mode and a delayed burst end signal and a delayed precharge timer enable signal to the one of the precharge timer in test mode” as claimed in the dependent claim 14; or

“ each of the precharge timers is configured to delay and synchronize with a clock signal the one of the precharge signals provided to the corresponding one of the memory banks” as claimed in the dependent claim 15; or

“ each of the precharge timers is configured to asynchronously provide the one of the precharge signals to the corresponding one of the memory banks” as claimed in the dependent claim 16; or

REASONS FOR ALLOWANCE

4. Claims 17-32 are allowed.

The following is an examiner's statement of reasons for allowance:

There is no teaching or suggestion in the prior art to:

“ a precharge timer configured to provide a first precharge signal to a second memory bank in response to receiving the delayed first burst end signal and the delayed first enable signal” as claimed in the independent claim 17; or

" means for supplying a second precharge signal to second memory bank in response to the delayed and synchronized signal" as claimed in the independent claim 23; or

" selecting the second signal in normal mode and the delayed first signal in test mode and supplying a precharge signal from a precharge timer in response to the selected signal" as claimed in the independent claim 27.

Conclusion

5. The following prior art, which is considered pertinent to applicant's disclosure although not relied upon, includes:

Yoon (US. Pat. No. 6,205,068) or Matano et al. (US. Pat. No. 5,357,474) discloses dynamic random access memory device having a precharge circuit similar to that of the present application, but fail to disclose as described above.

6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nam T Nguyen whose telephone number is (571) 272-1878. The examiner can normally be reached on 8 am to 5:30.

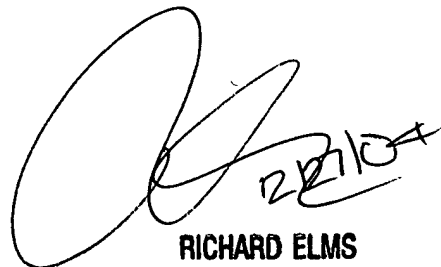
Art Unit: 2824


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on (571)272-1869. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nam T Nguyen
Examiner
Art Unit 2824

12/23/04


RICHARD ELMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

 12/27/04
Additionally, the specification abstract is objected to as containing legalese. Specifically, "comprises" should be changed to --includes--.